

Norovirus Prevention Guidance for Institutions/Facilities

Virginia Department of Health

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Summary

A recent dramatic increase in norovirus activity in Virginia has raised awareness of the impact of this gastrointestinal agent. In an effort to support institutions and facilities (e.g., hospitals, long-term care facilities such as nursing homes, prisons, etc.) the following detailed guidance has been developed. It contains basic information concerning norovirus, as well as recommendations to reduce the risk of outbreaks or mitigate the impact of an outbreak through pre-planning, as well as detailed information about actions to take during an outbreak. In addition to this document, consult with local health departments as needed to guide planning. During an outbreak, contact the local health department to identify facility-specific strategies that may be implemented.

Background

Infection with norovirus usually causes illness 24 - 48 hours after exposure, but can appear as early as 10 hours after exposure. Although infection with norovirus is not usually serious, people may feel very sick. Symptoms often include nausea, vomiting, diarrhea, and stomach cramping. Sometimes people have a low-grade fever, chills, headache, muscle aches, and a general sense of tiredness. The illness is usually brief, with symptoms lasting only one or two days. Most people have no long-term health effects from the illness. However, the very young, the elderly, and persons with weakened immune systems may be unable to drink enough liquids to replace what they lose from vomiting and diarrhea, causing dehydration that may require medical intervention.

There are no specific medications for treating norovirus infection; norovirus infection does not respond to antibiotics. By drinking fluids, such as juice or water, people can reduce their chance of becoming dehydrated. Sports drinks are not significantly better at replacing nutrients and minerals lost during this illness.

Transmission

Noroviruses are extremely contagious and spread easily from person to person. The virus is found in the stool and vomit of infected people. People can become infected in several ways, including eating food or drinking liquids that are contaminated by infected food handlers, touching surfaces or objects contaminated with norovirus and then touching their mouth before handwashing, or having direct contact with another person who is infected and then touching their mouth before handwashing.

People infected with norovirus are contagious from the moment they begin feeling ill to at least three days after recovery. Some people may be contagious for as long as two weeks after recovery. However, infected people do not become long-term carriers of norovirus.

Anyone can become infected with these viruses. Because there are many different strains of norovirus, norovirus infection and illness can re-occur throughout a person's lifetime. There is no vaccine for norovirus. Therefore, preventing infection and transmission is critical to reducing the impact of this virus.

Prevention/Management

The risk of infection with norovirus can be significantly reduced by good personal hygiene by staff and patients/residents, clear policy and leadership from facility administration, and attention to environmental cleaning. These viruses are **highly contagious and very hardy** [they can survive freezing and heating to 60°C (140°F)], so strict adherence is necessary.

Prevention (Pre-Outbreak Planning):

The following recommendations may assist facilities in reducing the risk of an outbreak of norovirus occurring, or may enhance the response should an outbreak occur:

1. Provide information (e.g., in-services, notices, posters, etc) to re-enforce facility policy regarding hygiene. In particular, focus on the need for frequent handwashing with warm water and soap. The use of ethanol-based hand sanitizer (minimum ethanol concentration = 60%) is appropriate when soap and water is not available - provide and encourage use of hand sanitizer stations in both work and public areas.
2. Ensure that a clear and fair policy on workers with illness is in place, and identify barriers to absence due to illness. A liberal/non-punitive sick leave policy that addresses the needs of symptomatic personnel and facility staffing needs should be in place. A contingency staffing plan should be developed that identifies the minimum staffing needs and prioritizes critical and non-essential services based on residents' health status, functional limitations, disabilities, and essential facility operations. This should recognize the problem of reduced staff availability **combined with** increased patient care needs during a norovirus outbreak.
3. Develop and institute basic surveillance for gastrointestinal infection in patients/residents and staff to more rapidly identify outbreaks. A system may need to be developed to monitor and record illness among patients/residents and staff routinely. This provides a baseline for illness, and helps to identify potential cases, as well as increases in disease activity that may indicate an outbreak. Data should be reviewed periodically. A specific case definition for norovirus might be:

Vomiting and/or diarrhea (two or more loose stools in a 24-hour period) in a resident or staff member with onset of symptoms since (*date when potential problem first suspected*) and whose symptoms have no other apparent cause.

Laboratory testing and confirmation can provide important information about the causative agent. However, Kaplan's criteria can be used to determine whether the cause of an outbreak is likely to be due to norovirus:

- Stools negative for bacterial pathogens
- Average duration of illness 12-60 hours
- Vomiting in at least 50% of cases
- Average incubation period 24-48 hours

In general, an outbreak of gastroenteritis in a facility is defined as the presence of more diarrhea or vomiting than would usually be expected in the facility, or in a particular unit, for that time of year. A basic threshold for norovirus might be three or more cases of illness among residents and/or staff within a 72-hour period.

Surveillance should also incorporate a system for collecting and handling specimens from potential cases (residents or staff). When an outbreak is suspected, consult with the local health department to determine appropriate testing options for specimens.

4. Review facility cleaning guidelines and identifying potential gaps. Observe routine housekeeping procedures to identify potential cross contamination issues (e.g., using the same cloth to clean bathroom surfaces and wiping down ice buckets). Correct deficiencies when found and share the information with other managers to standardize better cleaning methods.

Identify high risk surfaces (e.g., with frequent hand contact, high risk of exposure to fecal matter or vomitus, food preparation surfaces, common medical equipment, etc.) and a reasonable cleaning frequency for the facility. Ensure that equipment is available and working properly. Determine if water temperatures (e.g., for dishwashers) is adequate for norovirus disinfection (note that care should be used in adjusting facility hot water temperatures – any increase to temperatures that may injure staff/patients/residents should be considered carefully). Consider installing auto-dispensing paper towel dispensers in public restrooms, employee restrooms, kitchens, and locker rooms.

5. Plan for promptly acquiring additional resources (e.g., signs and other educational material, hand sanitizer, cleaning supplies, personal protective equipment). Recognize the increased need for support (e.g., increased waste management) as well as the increased consumption of some materials (e.g., paper towels and toilet paper in restrooms). Estimate the quantities of essential materials and equipment (e.g., masks, gloves, hand hygiene products, IV fluids, etc.) that would be needed during an outbreak. Develop plans to stockpile adequate supplies and to address supply shortages, including strategies for using normal and alternative channels for procuring critical resources.
6. Identify specific individuals to form a multidisciplinary planning committee or team to provide guidance and to respond to potential cases or outbreaks. Individuals may include:
 - Facility administration
 - Medical director
 - Nursing administration
 - Infection control
 - Occupational health
 - Staff training and orientation
 - Engineering/maintenance services
 - Environmental (housekeeping) services
 - Dietary (food) services
 - Pharmacy services

- Laboratory personnel
- Occupational/rehabilitation/physical therapy services
- Transportation services
- Purchasing agent
- Facility staff representative
- Other member(s) as appropriate (e.g., local health department personnel, clergy, community representatives, department heads, resident and family representatives, risk managers, quality improvement, direct care staff, collective bargaining agreement union representatives).

The planning committee should designate specific individuals to manage communications (e.g., for family, visitors, media), inter-facility coordination (e.g., for diverting new admissions), training and education of staff, and staffing needs in the event of an outbreak.

7. Ensure that contact information for the local health department and other key healthcare partners are readily available. Post the district health department phone number for reporting a cluster of illness. **By law, any cluster of illness must be reported by physicians and directors of healthcare facilities to the local health department immediately.**

Management of case/outbreak:

In the event that a suspected case or outbreak of norovirus does occur in a facility, the following guidance may help to reduce the impact.

1. Provide information to patients/residents and family/guests on the signs and symptoms, the mode of transmission, methods for preventing norovirus (including proper handwashing), and how to report illness. Request that family/guests who are ill defer visiting until no longer infectious.
2. Temporarily remove potential sources of transmission (e.g., candy dishes, fruit baskets).
3. Isolate ill residents from others by confining them to their rooms (until three days after their last symptoms). Group ill people together if possible. Discontinue activities where ill and well residents would be together. Group activities should be kept to a minimum or postponed until the outbreak is over. Residents should not be moved from an affected to an unaffected unit/ward/floor.

To encourage compliance, consider providing basic supplies, such as fluids (hot tea, water, electrolyte maintenance solutions such as Pedialyte®) and foods such as crackers, dry toast, and/or broth to ill individuals. Provide a mechanism for patients/residents to get items (newspapers, magazines, light snacks, over-the-counter medications, etc.) without leaving their rooms.

If there are transfers out of the facility during the outbreak, notify the receiving facility of the situation so that appropriate precautions may be taken.

4. Collect appropriate clinical specimens from some symptomatic staff and patients/residents

for laboratory analysis. Consult with local health department staff as soon as possible to determine the appropriate number of specimens to collect, the specimen collection methods, testing options, and arrange for transport (if testing is indicated).

Basic instructions for collecting specimens include:

1. Collect an unpreserved stool specimen in a clean, dry container (filling at least half way) during the first 48 hours of illness. Please note: Testing of vomitus generally cannot be done except under exceptional circumstances approved by the local health department.
2. Label each specimen container with the patient's first name, last name, and the name of the facility. Testing may not be performed if the specimen container is improperly labeled or if the submission form is incomplete.
3. Indicate the facility name on the container. Numerous norovirus outbreaks may be under investigation within a single geographic area and the facility name is used to track the specimen and to direct appropriate reporting.
4. Specimens for norovirus testing should be refrigerated (not frozen) after collection and placed on ice during transport to the appropriate laboratory.
5. Individual containers should be verified as being leak proof and then enclosed in a plastic bag. The entire collection should be bagged in plastic and placed in a padded, insulated box with refrigerant packs for shipment.

Note: in consultation with the local health department, determine if stool specimens also need to be collected in Cary Blair enteric transport medium (pink liquid) in order to test for other pathogens (e.g., *Salmonella*, *Shigella* and *Campylobacter*). Specimens collected in Cary Blair transport medium should be maintained at room temperature; DO NOT ship specimens in Cary Blair on ice.

When possible, specimens from approximately six separate cases are preferred to ensure adequate identification of the causative agent in an outbreak. Contact local health department staff for additional guidance on specimen collection and submission.

5. Ideally, keep all residents in their rooms and serve meals in rooms.
6. Ill staff should remain out of work until diarrhea and/or vomiting cease. However, food service workers, daycare workers, or other workers who provide direct patient care should remain out of work for three days following cessation of diarrhea and/or vomiting. On returning to work staff who have recently been ill may be given different duties, if possible, to further reduce the risk of transmission. It should be recommended, but not required, that employees seek medical care for their illnesses.

Testing for norovirus is not required before staff return to work; however, the need for good hand hygiene should be stressed to returning staff.

7. Minimize the flow of staff between sick and well residents. Staff should be assigned to work with either well residents or sick residents, but should not care for both groups. Staff who go back and forth between ill and well residents play a major role in transmitting the virus from resident to resident.

8. Limit the number of staff 'floating' to different wards, as much as possible, to decrease the chance of infection spreading to other floors or wards.
9. Staff should wash their hands when entering and leaving *every* patient/resident room.

Staff may be further directed to wash hands at the following times:

- Particular intervals (e.g., once per hour)
- Upon entering a kitchen
- After using the restroom
- After shaking hands or other physical contact with peers and guests
- After sneezing
- After touching the face
- After blowing the nose
- After rubbings hands on clothing and similar activities
- After handling raw foods
- After handling dirty kitchen utensils and kitchenware
- After cleaning, sweeping, or mopping
- After a break
- After smoking, eating or drinking
- Before handling any food, especially ready-to-eat foods and ice
- Prior to handling or administering any oral medications (e.g., pills)
- After changing diapers
- After handling other potentially contaminated objects

Employee hand washing compliance may require active management through direct observation, reminders, and correction.

10. Patients with suspected norovirus infection should be managed using Standard Precautions, with careful attention to hand hygiene practices. However, Contact Precautions should be used when caring for diapered or incontinent persons, during outbreaks, and when a splash could occur.

Therefore, staff or visitors should generally wear gloves and gowns when caring for ill patients/residents or when touching potentially contaminated surfaces. A surgical (procedure) mask with eye-shield should be worn if there is the possibility of contact with vomiting patients/residents or splashes that could aerosolize infective material.

Change gowns and gloves between contacts with roommates. Remove gloves and then the gown, perform hand hygiene, and then remove mask before exiting the patient/resident's room. Ensure that hands and clothes do not touch potentially contaminated environmental surfaces or items in the resident's room, such as bed rails and tables. If gloves or hands are visibly soiled with feces or vomitus, wash hands with soap and water. Ethanol-based hand gels (minimum ethanol concentration = 60%) may be used if gloves or hands have not been visibly soiled and if soap and water are not readily available.

Housekeeping staff should also wear gloves, as well as masks, when cleaning contaminated or potentially contaminated surfaces or laundry.

11. Use a disinfectant to frequently clean all heavy hand contact surfaces such as food preparation surfaces, self-service utensil handles, sinks, faucets, drinking fountains, tables, chairs, counters, door handles and latches, push plates, railings, elevator buttons, thermostats, remote controls, telephones, alarm clock buttons, keyboards, chairs (including backs), hand rails, light switches, curtain pull rods, ice machines, vending machine keyboards, pens, pencils, games, sports equipment, medical equipment (e.g., blood pressure cuffs), etc. Think of items that are touched regularly and make sure that they are cleaned frequently. Restroom surfaces, such as faucet handles, soap dispensers, stall doors and latches, toilet seats and handles, and towel dispensers are heavily contaminated surfaces and require frequent disinfection.

An effective disinfectant is a freshly-prepared dilute bleach solution. Various sources (e.g., Centers for Disease Control and Prevention, Food and Drug Administration, etc) may have different recommended concentrations; the ideal concentration is unknown. For hard, non-porous, environmental surfaces, the CDC recommends a minimum concentration of 1,000 ppm (generally a dilution 1 part household bleach solution to 50 parts water). However, in areas with high levels of soiling and resistant surfaces, up to 5,000 ppm chlorine bleach may be used. **The Virginia Department of Health currently recommends the use of freshly made 10% chlorine bleach solution (i.e., 5,000 ppm sodium hypochlorite = 1 cup bleach to 9 cups water) when possible to best ensure disinfection.** Do NOT mix bleach with other cleaning agents (e.g., acids such as vinegar, or ammonia such as Windex®) - potential irritants released from such mixtures are chlorine gas, chloramines, and ammonia gas.

How to Mix and Use Bleach Solutions

Household bleach is made of 5.25% Sodium Hypochlorite (52,500 ppm); therefore, a 1% bleach solution is 525 ppm. One tablespoon (= 15 milliliters = 0.5 liquid ounce) of concentrated bleach per gallon of water at normal room temperature is considered to be the equivalent of 200 ppm. Some experiments have shown that 200 ppm (or even less) will inactivate many viruses. This is the standard for cleaning food preparation surfaces. However, for cleaning equipment a higher concentration is required than for a utensil rinse or treatment of food preparation equipment.

Hypochlorite is substantially and quickly inactivated in the presence of organic matter. So, although 1% may be adequate for surface decontamination, a 10% dilution may be a better choice for inactivation of norovirus. A 10% solution corresponds to one part bleach to nine parts water (e.g., one and a half cups of household bleach per gallon of water).

Open bottles of concentrated chlorine will lose effectiveness after 30 days. Change bottles of bleach every 30 days for accurate concentrations. For disinfecting, use an unopened bottle of chlorine bleach. **Prepare a dilution of fresh bleach every day of use and discard unused portions.**

Note: "Ultra" concentrations of bleach contain 6-7.35% hypochlorite and are not recommended to avoid producing higher than intended concentrations of chlorine.

Adapted from: www.allqa.com/ChlorineSanitizing.htm and www.cdc.gov/ncidod/diseases/hanta/hps/noframes/bleach.htm

Since chlorine bleach may impact fabrics and other surfaces, spot test an area to be cleaned before applying to visible surface. Use only in well-ventilated areas.

For disinfecting, use an unopened bottle of chlorine bleach. Prepare a dilution of fresh bleach every day of use and discard unused portions. Open bottles of concentrated chlorine will lose effectiveness after 30 days. Change bottles of bleach every 30 days for accurate concentrations.

The reliability of disinfectants other than those containing chlorine to kill norovirus is uncertain, even with EPA approval, so that the use of chlorine containing (hypochlorite) solutions is recommended for use whenever possible. However, for surfaces that could be corroded or be damaged by bleach, other agents may be considered. These include:

- Peroxomonosulphate (e.g., Virkon-S by Antec International)
- Concentrated phenol solutions (e.g., Amphyl, Mikro-Bac II by Ecolab, concentrated Lysol, concentrated Pinesol): these may be effective, but may require **2-4x** more concentration than the manufacturer's recommended concentration to kill norovirus.

In addition, other potentially effective agents may include:

- Glutaraldehyde (0.5%)-based agents (e.g., Cidex®, Sonacide®, Sporidicin®, Hospex®, and Omnicide®): may be considered for disinfecting sensitive medical equipment.
- Parachlorometaxylenol (e.g., EcoTru by EnviroSystems)
- Certain forms of hydrogen peroxide (e.g., Accelerated Hydrogen Peroxide™ by Virox Technologies)
- Hypochlorous acid (e.g., Sterilox by PuriCore)
- Iodine (0.8%)-based agents
- Materials using 75% ethanol (e.g., alcohol swabs) may be effective. However, ethanol is highly flammable and should not be used for disinfection of large surface areas except under specific circumstances.

These should be mixed at the manufacturers' recommended concentrations. Note that **these chemicals can be dangerous. Follow all safety instructions.** Also, note that commonly used quarternary ammonium disinfectants (e.g., HB or TB Quat Disinfectant Cleaner by 3M™) do not appear to be effective against norovirus.

The cleaning process should consist of:

- A. Wearing a disposable mask, gloves (environmental cleaning using a more concentrated disinfectant may require a heavier duty glove than a simple non-sterile latex/vinyl glove), eye-shield, and plastic disposable apron. Disposable shoe covers may also be considered.
- B. Using paper towels to soak up excess liquid. Transfer these and any solid matter directly into a plastic bag.
- C. Cleaning the soiled area with detergent and hot water, using a disposable cloth.
- D. Disinfecting the contaminated area with a virucidal agent.

- E. Dispose of apron and cloths into a plastic waste bag. Dispose of single-use gloves and eye-shields into the waste bag; clean re-usable personal protective according to manufacturers recommendations.
- F. Washing hands thoroughly using soap and water for at least one minute and then dry them thoroughly after completing the clean-up procedure and again after completing the disposal procedure.

Note: for contamination with fecal material, the process should include: 1) wipe clean with detergent and water, and 2) disinfect with 10% bleach solution for at least five minutes. Since this concentration is much higher than is recommended for sanitizing food contact surfaces in the Food Code, if the area is a food contact area then this disinfection procedure must be followed by a clear-water rinse, and a final wipe down with a sanitizing bleach solution (i.e., 200 ppm sodium hypochlorite = 0.5% chlorine bleach = one tablespoon bleach to one gallon of water).

Vomit should also be treated as potentially infectious material and should be immediately covered with a disposable cloth, and doused with a disinfectant to reduce potential airborne contamination. All individuals in the immediate area of the vomiting incident should be cleared from the area before the vomit is cleaned-up. Cleaning staff should use face masks, gloves, and aprons when cleaning up after a vomiting incident. Paper toweling or other toweling used to clean-up liquid vomit should be immediately disposed in a sealed trash bag and disposed of properly. Follow the cleaning procedures as for fecal contamination.

The use of disposable dishes and utensils is not necessary as regular dish and utensil washing practices should effectively remove any pathogens.

Heat disinfection (i.e., pasteurization) has been suggested for items that cannot be subjected to chemical disinfectants. A temperature equal to or greater than 60°C (140°F) – more likely 170°F – may be necessary.

Note: The above is provided solely as guidance. The Virginia Department of Health does not endorse or recommend any particular product or manufacturer, and inclusion on this list should not be taken as such an endorsement. This list is based on products known to staff of the Health District at the time this document was created, and should not be assumed to be comprehensive. These products vary in their cost, contact time needed, ability to clean and sanitize/disinfect, and shelf life. Each product must be used in accordance with the manufacturer's instructions and state/local regulations, and appropriate training and personal protective equipment must be provided to staff before they are used. If you have questions or concerns about the use of a particular product, please contact the Environmental Health Specialist assigned to your facility.

12. Cleaning procedures that increase the aerosolization of norovirus, such as dry vacuuming of soiled carpets or buffing hard surface floors, should **not** be utilized. Clean hard surfaces with detergent and hot water, followed by disinfection. Contaminated carpets should be managed in a three step process: 1) clean with carpet detergent and hot water, 2) disinfect by applying an appropriate disinfectant, 3) steam clean (158°F for five minutes or 212°F for one minute is needed for complete inactivation). Using an appropriate virucidal agent in the reservoir for the cleaning solution may be considered.

Note: Remove bags from all recently used vacuum cleaners; sanitize the vacuum bags with a

virucidal disinfectant and then replace the bags with HEPA filter bags before subsequent use.

13. Contaminated linen and bed curtains should be carefully placed directly into laundry bags (to prevent generating aerosols) and washed separately in hot water and detergent for a complete wash cycle – ideally as a half load for best dilution.
14. Air currents generated by open windows, fans, or air conditioning will disperse aerosols widely. Air currents should be minimized.
15. It may be prudent to discontinue new admissions and/or visitation to the facility until the outbreak is over. If visitation is allowed, visitors should go directly to the person they are visiting and not spend time with anyone else. They should wash their hands upon entering and leaving the room. They should not visit if they are sick.
16. Implement active surveillance (e.g., daily symptom logs) for staff and patients/residents to identify new cases early, and to identify potential lapses in control measures. Surveillance logs for patients/residents should include information such as the patient/resident name, room/floor/wing, date of illness onset, signs/symptoms of illness, duration of illness, treatment (including hospitalization) and outcome, and specimen collection and results. Staff surveillance should include the above, as well as the specific onset date/time of diarrhea or vomiting, and job duties.
17. Provide regular updates to employees, including:
 - The status of the outbreak
 - The current response measures
 - Talking points to be used in dealing with patients/residents and families
 - Reminders on proper handwashing
 - The importance of staying home while ill
 - Procedures for identifying and for reporting illness

Preventive measures should be continued for at least three days after the outbreak appears to be over, since infected persons continue to shed the virus after they have recovered. Continued surveillance for new cases should continue, to enable a rapid response.

Following the resolution of a norovirus outbreak, conduct an after-action review to identify strengths and weaknesses of the response. Use this opportunity to identify areas that may be improved on for future outbreaks.

Contact the Local Health Department

Although individual cases of norovirus are not reportable to the health department, physicians and directors of healthcare facilities are required to report outbreaks (including norovirus outbreaks) to the local health department. The local health department can provide specific guidance to facilities to assist in identifying the cause of illness and for reducing further infections. Contact information for the local health department is available at www.vdh.virginia.gov/lhd/

Additional Resources

For additional information on norovirus, please visit the following websites:

“Norwalk-Like Viruses” Public Health Consequences and Outbreak Management:
Centers for Disease Control and Prevention

<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5009a1.htm>

Information on norovirus, including frequently asked questions:
Centers for Disease Control and Prevention

http://www.cdc.gov/ncidod/diseases/submenus/sub_norwalk.htm

Virginia Department of Health Norovirus Factsheet

<http://www.vdh.virginia.gov/epidemiology/factsheets/norovirus.htm>

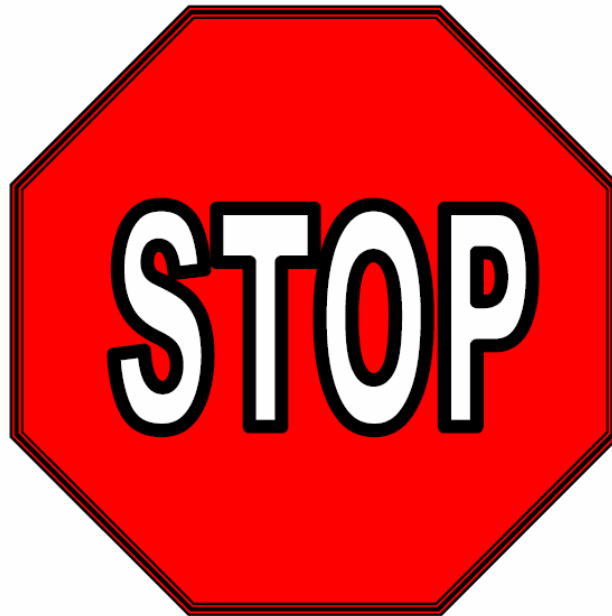


ATTENTION VISITORS!!!

We presently have a number of ill residents. Please wash your hands before visiting and before leaving. You may wish to reconsider visiting at this time.

If you have any questions please contact either the Administrator _____ or the Director of Nursing _____.

Thank you



Hand washing is the single most important practice to prevent the spread of outbreaks!

HANDS MUST BE WASHED:

- Whenever they are visibly soiled or there has been contact with stool.
- Between contact with different residents.
- Before putting on gloves *and* after removing gloves.
- After using the toilet.
- Before eating or smoking.
- Before handling or preparing food.

A PROPER HAND WASH INCLUDES:

- Using warm running water and soap with plenty of friction for 30 seconds.
- Using a clean paper towel to dry your hands and to turn off the tap.

Use of a waterless hand sanitizer may be substituted for handwashing if adequate sink facilities are not immediately accessible and hands are not visibly soiled.

How to Sanitize

1. Put on disposable gloves, mask, and gown, and wear eye protection.



2. Fill a clean container with 1 gallon of water.



3. Mix 1 cup of 5.25% unscented bleach with 9 cups of water. (This makes a 5,000 ppm sodium hypochlorite solution.)



4. Before using bleach solution, wipe off all surfaces. Use disposable towels to remove any vomit, stool, or other substances like food or grease.



5. Apply bleach solution to surface area and allow it to remain wet for 10 minutes. If possible, allow bleach solution to air dry.



6. Dispose of all soiled paper towels and personal protective equipment in a plastic trash bag and place in garbage.



Total staff (ill and well):

[illegible]